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09/937,127	02/14/2002	Anders Bostrom	10806-010	6140

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER
MERED, HABTE

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	09/937,127	BOSTROM ET AL.
	Examiner	Art Unit
	Habte Mered	2616

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>2/7/2007</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-12</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-12</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>14 February 2002</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892) ✓

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   The amendment filed on 2/07/2007 has been entered and fully considered.

2.   Claims 1-12 are pending. Claim 13 has been cancelled. Claim 1 is the base

independent claim.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Solve et al (US 5, 905, 733), hereinafter referred to as Solve in view of Hsu et al (US 6,

122, 294), hereinafter referred to as Hsu.

Solve discloses an apparatus and method for distinguishing in-band signaling

from user data.

5.   Regarding **claim 1**, Solve teaches a method for transferring information in a time

multiplexed communication network **(See Figure 1 TDMA frame 100 and TDMA/GSM**

system described in Column 2:50-67) in which control information for controlling the

operation and payload traffic of the network is conveyed in separate channels **(i.e.**

control information controlling both the operation and payload traffic of the

network is illustrated in Column 1:20-25) which are each defined by one or more time

slots **(Each TDMA frame 100 of Figure 1 contains 8 time slots and see also**

Column 2:52-67) allocated in a recurrent frame **(Figure 1, TDMA frame 100 is a**

recurrent frame), each of the time slots comprising an established number of n bits **(In
Solve's system the time slot is 148 bits long as illustrated in Column 4:1-7)**, the
method comprising the steps of associating each of at least those time **slots (See
element 110a-110g in Figure 1 that represents any of the time slots in Figure 1)**
which define channels conveying payload traffic **(See a TDMA traffic burst occurring
as element 120 in any one of the time slots shown in Figure 1)** with a respective
additional bit **(Steal Flag, elements 140a and 140b in Figure 1 and Training bits
135a and 135 b)** which is used as a flag for indicating whether metainformation exists
regarding the time slot associated with the respective additional bit **(See Column 3:1-
7)**; and conveying the metainformation, when the additional bit indicates the existence
thereof, as at least some of the n bits of the time slot associated with the additional bit.
(See also Column 1:14-67)

Solve fails to disclose that the metainformation identifies the status of a timeslot
and the content of a timeslot.

*Hsu teaches method and apparatus for network transmission capacity
enhancement for telephone networks.*

Hsu discloses that the metainformation identifies the status of a timeslot and the
content of a timeslot. **(What the Applicant refers to as metainformation is control
information and the Applicant teaches the status of a timeslot to mean whether
the slot is idle or not as illustrated in the specification on page 12 in line 14 and
further the Applicant states on page 12 in lines 18-20 the content of the time slot
can be information on what constitutes end of a packet. Certainly Hsu teaches**

the same concept in Column 7:24-36 and further illustrated in Figure 3A and Hsu

clearly shows the control information can deal with packet/frame delimiters as

well the status of a time slot by indicating if the slot is mapped to a channel or not

(i.e. if the slot is not mapped to a channel or user then it is idle.)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Solve's method to incorporate control information that

identifies the status of a timeslot and the content of a timeslot. The motivation is that

such an arrangement of the control information enhances transmission capacity by

efficiently transmitting control information in-band while sending signaling info out of

band as illustrated by Hsu in Columns 1:10-15 and 4:48-51.

6.   Regarding **claim 2**, Solve discloses a method of comprising the step of

associating also the time slots which define channels conveying control information with

a respective additional bit which is used as a flag for indicating whether control

information exists regarding the time slot associated with the respective additional bit

(See Column 1:55-67), the control information being conveyed as at least some of the

n bits **(Steal flags as a single bit or the training bits as several bits in Figure 1)** of

the time slot associated with the respective additional bit. **(See Figure 1a and 1b and**

Columns 2:63-67 and 3:1-6&19-25)

7.   Regarding **claim 3**, Solve teaches a method wherein the control information can

be of different types and wherein only the existence of control information and not the

type of control information is indicated by the bit, which is associated with the time slot

in which the control information is conveyed. **(See Figure 1a and 1b and Columns 1:55-67, 2:63-67, and 3:1-6&19-25)**

8.   Regarding **claim 4**, Solve teaches a method, wherein the control information **(Steal Flag = 0 as illustrated in Column 3:1-10)** identifies that the time slot in which the control information is conveyed does not convey payload.

9.   **Claims 5-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over Solve in view of Hsu as applied to claim 1 above, and further in view of Abefelt et al (US 5, 347, 513), hereinafter referred to as Abefelt.

Abefelt discloses a digital switch that uses the same links for signaling as those used to transmit information.

10.   Regarding **claim 5**, the combination of Solve and Hsu teaches all aspects of the claimed invention as set forth in the rejection of claim 1 but does not disclose a method, wherein the control information identifies that the time slot in which the control information is conveyed replaces erroneous payload.

Abefelt discloses a method, wherein the control information identifies that the time slot in which the control information is conveyed replaces erroneous payload. **(See Column 8, Line 27)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Solve's and Hsu's method to incorporate control information that identifies that the time slot in which the control information is conveyed replaces erroneous payload. The motivation being establishing

some form of error correction mechanism that relies on retransmission of bad or lost data in order to minimize error occurring in the transmission medium.

11.   Regarding **claim 6**, the combination of Solve and Hsu teaches all aspects of the claimed invention including packet/frame delimiters as set forth in the rejection of claim 1 but does not disclose a method, wherein the control information identifies that the time slot in which the control information is conveyed marks the start of a packet.

Abefelt discloses a method, wherein the control information identifies that the time slot in which the control information is conveyed marks the start of a packet. **(See Column 7, Lines 58)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Solve's and Hsu's method to incorporate a control information that identifies that the time slot in which the control information is conveyed marks the start of a packet. The motivation is to minimize the effort consumed by the receiver in determining the start of a packet.

12.   Regarding **claim 7**, the combination of Solve and Hsu teaches all aspects of the claimed invention including packet/frame delimiters as set forth in the rejection of claim 1 but does not disclose a method, wherein the control information identifies that the time slot in which the control information is conveyed marks the end of a packet.

Abefelt discloses a method, wherein the control information identifies that the time slot in which the control information is conveyed marks the end of a packet. **(See Column 7, Lines 58)**

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify the combination of Solve's and Hsu's method to

incorporate a control information that identifies that the time slot in which the control

information is conveyed marks the end of a packet. The motivation is to minimize the

effort consumed by the receiver in determining the end of the current received packet

and the start of the next received packet.

13.   **Claims 8-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Solve in view of Hsu as applied to claim 1 above, and further in view of Yamanaka et al

(Naoaki Yamanaka et al, "DTM: New Dynamic Transfer Mode using Dynamically

Assigned Short-hold Time-slot Relay, 1998, IEEE), hereinafter referred to as

Yamanaka.

Yamanaka teaches a new high-speed network architecture called Dynamic

Transfer Mode (DTM).

14.   Regarding **claim 8,** the combination of Solve and Hsu teaches all aspects of the

claimed invention as set forth in the rejection of claim 1 but does not disclose DTM time

slots in a DTM network.

Yamanaka discloses a method, which is used with respect of DTM time slots in a

DTM network. **(See Page 377, 1st Column – last two sentences and 2nd Column,**

Lines 1-7)

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Solve's and Hsu's method by incorporating the use of

DTM time slots in a DTM network. The motivation being DTM networks are extremely

efficient in handling bursty traffic as DTM network creates connections on the fly as illustrated by Yamanaka on Page 376 in the 1st Paragraph.

15.   Regarding **claim 9**, the combination of Solve and Hsu teaches all aspects of the claimed invention as set forth in the rejection of claim 1 but does not disclose a method, which is used when conveying DTM time slots, each with its respective additional associated bit, over an underlying communication protocol.

Yamanaka discloses a method, which is used when conveying DTM time slots, each with its respective additional associated bit, over an underlying communication protocol. **(See Figure 3 and Page 377, 2nd Column)**

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Solve's and Hsu's by incorporating additional bits with respect of DTM time slots in a DTM network. The motivation being the additional bits can be used for in-band signaling as further illustrated by Yamanaka on page 377 in the last paragraph in which he states the use of packet delimitation mechanism for in-band signaling to relay time slot assignment.

16.   Regarding **claim 10**, the combination Solve's and Hsu's teaches all aspects of the claimed invention as set forth in the rejection of claim 1 but does not disclose a method, which is used when conveying DTM time slots, each with its respective additional associated bit, over SDH/SONET.

Yamanaka discloses a method, which is used when conveying DTM time slots, each with its respective additional associated bit, over SDH/SONET. **(Page 377, 1st**

Column, last paragraph, 1ˢᵗ sentence. An STM network is definitely an SDH

network)

17.   Regarding **claim 11**, the combination of Solve's and Hsu's teaches all aspects of

the claimed invention as set forth in the rejection of claim 1 but does not disclose a

method wherein each individual DTM time slot of 64 bits to be conveyed over

SDH/SONET is mapped together with the bit associated therewith to jointly hold 65 bits

in a virtual container (VC) in SDH/ SONET.

Yamanaka discloses a method, wherein each individual DTM time slot of 64 bits

to be conveyed over SDH/SONET is mapped together with the bit associated therewith

to jointly hold 65 bits in a virtual container (VC) in SDH/ SONET. **(Page 377, 1ˢᵗ**

Column, last paragraph, 1ˢᵗ sentence. An STM network is definitely an SDH

network. Given 64 bits length is a standard for DTM time slot, which the

Applicant also concurs in the specification (i.e. Examiner takes Official Notice

that DTM time slot over SDH/SONET protocol is 64 bits as stated in US 5946315 to

Ramfelt et al) and the flag can be 1 or more bits resulting in 65 bits or more.)

18.   Regarding **claim 12**, the combination of Solve and Hsu teaches all aspects of the

claimed invention as set forth in the rejection of claim 1 but does not disclose a method

wherein each individual DTM time slot of 64 bits to be conveyed over SDH/SONET is

mapped together with the data bit associated therewith and an additional parity bit to

jointly hold 66 bits in a virtual container (VC) in SDH/ SONET.

Yamanaka discloses a method, wherein each individual DTM time slot of 64 bits

to be conveyed over SDH/SONET is mapped together with the data bit associated

therewith and an additional parity bit to jointly hold 66 bits in a virtual container (VC) in SDH/ SONET. **(Page 377, 1st Column, last paragraph, 1st sentence. An STM network is definitely an SDH network. Given 64 bits length is a standard for DTM time slot which the Applicant also concurs in the specification (i.e. Examiner takes Official Notice that DTM time slot over SDH/SONET protocol is 64 bits as stated in US 5946315 to Ramfelt et al) a and the flag can be 1 or more bits resulting in 65 bits or more. Obviously if a parity bit is added the total comes to 66 bits. To one ordinarily skilled in the art using parity bit in packet communication such as modems is pretty much a standard scheme.)**

19.   With respect to **claims 10-12**, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Solve's and Hsu's by incorporating additional bits with respect of DTM time slots in a DTM network over SDH/SONET protocol wherein each individual DTM time slot of 64 bits is conveyed over SDH/SONET and one or two additional bits are added making the final length of the DTM time slot 65 bits or 66 bits in the virtual container. The motivation being the additional bits can be used for in-band signaling as further illustrated by Yamanaka on page 377 in the last paragraph in which he states the use of packet delimitation mechanism for in-band signaling to relay time slot assignment. Additional motivation for using SONET/SDH protocol with DTM technology is that SONET/SDH is a protocol for high-speed network and traffic burst can often occur and DTM is efficient with bursty traffic.

Response to Arguments

20.   Applicant's arguments with respect to claim 1 and all dependent claims have been considered but are moot in view of the new ground(s) of rejection.   Since the only argument presented by the Applicant for independent claim 1 and all subsequent dependent claims revolves around the primary reference, Solve, failing to teach the newly added limitation namely that the metainformation/control information identifies the status of the time slot and the content of the timeslot. Examiner as result of the newly added limitation has withdrawn the 102(b) rejection of claim 1. A new 103 rejection of claim 1 based on the combination of Solve and Hsu has been presented.

Conclusion

21.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

22.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

     US Patent (5, 511, 072) to Delpart

     US Patent (6, 195, 346) to Pierson, Jr.

     US Patent (6, 577, 618) to Diachina et al

     US Patent (5, 721, 732) to Emeott et al

     US Patent (5, 842, 007) to Tarsky et al

     US Patent (5946315) to Ramfelt et al

     US Publication (2001/0015980) to Ramfelt et al

     also disclose similar subject matter.

Correspondence

23.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Habte Mered whose telephone number is 571 272 6046.

The examiner can normally be reached on Monday to Friday 9:30AM to 5:00PM.

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Doris H. To can be reached on 571 272 7629. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-

9306.Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

HM
5-13-2007

DORIS H. TO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600